

Patent # 1861D

## DIE ATTACH ADHESIVES WITH VINYL ETHER AND UREA FUNCTIONALITY

This application is a divisional of application serial number 09/573,303.

### FIELD OF THE INVENTION

This invention relates to compounds that contain both vinyl ether and urea functionality, and to adhesives containing those compounds.

### BACKGROUND OF THE INVENTION

Adhesive compositions, particularly conductive adhesives, are used for a variety of purposes in the fabrication and assembly of semiconductor packages and microelectronic devices. The more prominent uses are the bonding of integrated circuit chips to lead frames or other substrates, and the bonding of circuit packages or assemblies to printed wire boards.

There exist electron acceptor/donor adhesives that contain vinyl ethers as the donor compounds for use in low modulus adhesives, particularly in fast-cure adhesives for die attach applications. However, die attach adhesives containing commercially available vinyl ethers frequently suffer from poor adhesion, resin bleed and voiding due to the volatility and non-polar nature of these commercial vinyl ethers. Thus, there is a need for improved die attach adhesives utilizing vinyl ethers containing polar functionality in order to address these performance issues.

### SUMMARY OF THE INVENTION

This invention relates to die attach adhesive compositions containing resins that have vinyl ether and polar functionality, such as a carbamate, thiocarbamate or urea functionality, on a molecular (small molecule) or

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